

REMARKS

Claims 1-51 are pending in the application, though Claims 7-16, 24-32, 39, 41-42, 44-45, 47-48, 50 and 51 have been withdrawn from active consideration.

Claims 1-4, 6, 17-23, 33-38, 40, 43, 46 and 49, however, remain in active prosecution.

Claim 5 has been cancelled (without prejudice or disclaimer of that which is defined thereby), and Claim 1 has been amended.

Sections 102(e) Rejection:

Claims 1 and 3-6 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent Application Publication No. 2004/0185733 (Murai) for the reasons given at pages 3-4 of the Action.

Applicants traverse the Section 102(e) rejection.

As the Examiner is aware, the present invention as defined by Claim 1 is directed to and claims a resin transfer molding process, steps of which comprise:

(a) providing a heat curable composition into a closed mold containing a preform;

(b) exposing the interior of the mold to a first elevated temperature and elevated pressure sufficient to wet the preform with the heat curable composition; and

(c) curing the heat curable composition-impregnated preform within the mold at a second elevated temperature to form a resin transfer molded product.

The heat curable composition comprises (i) a benzoxazine component.

The time within which the viscosity of the heat curable composition increases by 100% under the first elevated temperature and elevated pressure set forth in (b) above is in the range of 1 to 10 hours at the first temperature.

Murai is directed to a carbon fiber reinforced plastic (hereinafter, "CFRP") board. The CFRP board comprises a woven fabric as a reinforcing base material, the woven fabric comprising carbon fibers; and at least one of a gel coat and a paint provided on the board member. The NSIC value (or A-value) of the surface of the CFRP board is 30% or more.

Nowhere in Murai, contrary to that which is asserted in the Action, is there a disclosure, let alone a suggestion or motivation, for the heat curable composition to increase viscosity by 100% under the first elevated temperature and elevated pressure

set forth in (b) above is in the range of 1 to 10 hours at the first temperature, which in practice is the injection temperature.

An effective anticipatory reference must disclose each and every recitation of a claim under review. Without such exacting disclosure, Section 102 rejections cannot stand.

Murai does not disclose each and every recitation of Claim 1. Thus, the Section 102 rejection should be withdrawn.

Sections 103(a) Rejection:

Claim 2 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Application Publication No. 2004/0185733 (Murai) in view of J. Jang, "Performance Improvement of Rubber-Modified Polybenzoxazine", J. of Appl. Polym. Sci., Vol. 67, pp. 1-10 (1998) for the reasons given at pages 4-5 of the Action.

Claims 17-18, 20-23, 33 and 35-38 stand rejected under Section 103(a) as allegedly being unpatentable over Murai in view of what has been characterized by the Examiner as "Applicants' Admitted Prior Art" for the reasons given at pages 5-7 of the Action.

Claims 19 and 34 stand rejected under Section 103(a) as allegedly being unpatentable over Murai in view of what has

been characterized by the Examiner as "Applicants' Admitted Prior Art" and further in view of Jang for the reasons given at pages 7-8 of the Action.

Claims 40, 43, 46 and 49 stand rejected under Section 103(a) as allegedly being unpatentable over Murai in view of U.S. Patent No. 6,620,905 (Musa) for the reasons given at page 8 of the Action.

Applicants traverse the Section 103(a) rejections.

Murai is discussed and contrasted above.

Jang reports the use of polybenzoxazine modified with amine-terminated, butadiene acrylonitrile rubber and with carboxyl-terminated, butadiene acrylonitrile rubber to improve mechanical properties. The polybenzoxazine chosen was synthesized from bisphenol A, formaldehyde and the aromatic amine, aniline.

Musa is directed to and claims a curable composition comprising benzoxazine compounds and a curable compound or resin selected from the group consisting of vinyl ethers, vinyl silanes, compounds or resins containing vinyl or allyl functionality, thiol-enes, compounds or resins containing cinnamyl or styrenic functionality, fumarates, maleates, acrylates, maleimides, cyanate esters, and hybrid resins

containing contain both vinyl silane and cinnamyl, styrenic, acrylate or maleimide functionality.

As far as what the Examiner has characterized as "Applicants' Admitted Prior Art", Applicants note that they referred in the section of the application entitled "Background of the Invention" to:

Resin transfer molding ("RTM") is a process by which a resin -- conventionally and predominately, epoxy-based resin systems and maleimide-based systems -- is pumped at low viscosities and under pressure into a closed mold die set containing a preform of dry fabric. The resin infuses into the preform to make a fiber-reinforced composite article. The RTM process can be used to produce at low cost composite parts that are complex in shape. These parts typically require continuous fiber reinforcement along with inside mold line and outside mold line controlled surfaces.

Fiber-reinforced composite articles may be manufactured from vacuum assisted resin transfer molding ("VaRTM"), like RTM. In contrast to RTM, VaRTM employs an open mold and places the system under a vacuum to assist the resin infusion process.

Resin film infusion ("RFI"), like RTM, infuses a resin into a preform placed in a mold. Here, however, the resin is in the form of a film, which is placed in the mold together with the preform. U.S. Patent No. 5,902,535 speaks to RFI molds and processes, and is expressly incorporated herein by reference.

The matrix resin used in the RTM and VaRTM advanced processes should desirably have a low injection viscosity to allow complete wetting and infusion of the preform.

Bismaleimide-based resins for RTM and RFI processes are known, and examples of which are described in U.S. Patent Nos. 5,955,566 and 6,313,248.

And, two component epoxy resin compositions have been used, where the epoxy resin and the hardener components are combined immediately prior to use. One component epoxy resin compositions oftentimes must be stored at controlled low temperatures to prevent premature cross-linking reactions and to extend storage life. Otherwise, the viscosities of such one component epoxy resin compositions would build far too quickly, thus rendering their working life unsuitable (or at least not desirable) from a commercial standpoint.

(Specification, pages 2-3, paragraphs [0005]-[0010].)

Nevertheless, notwithstanding the state of the technology, Applicants indicated that there is a need for other resin systems to be used in these advanced processes, particularly a resin system with improved performance properties. And to date there has been no disclosure, teaching or suggestion to prepare a heat curable composition either as a matrix resin or in film form based on benzoxazine-containing compositions for these advanced processes.

The present invention satisfies that need, and as claimed the invention as so defined is patentably distinct from the cited documents of record.

Apart from each of three cited documents being directed to benzoxazines, the similarity from the point of view of the present invention ends there.

There is no motivation for persons of ordinary skill in the art to look to any of the cited documents to supply the deficiencies of the other to reach the invention as now claimed. More specifically, the primary document, Murai, is deficient at least with respect to the time within which the viscosity of the heat curable composition increases by 100% under the first elevated temperature and elevated pressure set forth in (b) above is in the range of 1 to 10 hours at the first temperature. And the Examiner has not pointed to any such motivation.

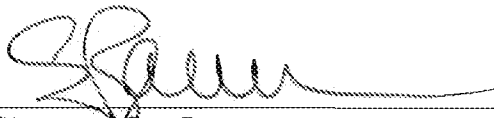
Moreover, even assuming it was proper to look to secondary documents, those documents do not remedy the deficiencies of Murai.

Based on the above, Applicants respectfully request reconsideration and withdrawal of all rejections, and passage to issue of the subject application.

Application No. 10/642,325
Office Action of February 7, 2006
Amendment dated May 8, 2006

Applicants' undersigned attorney may be reached by telephone at (860) 571-5001, by facsimile at (860) 571-5028 or by e-mail at steve.bauman@us.henkel.com. All correspondence should be directed to the address given below.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Bauman', is written over a horizontal line.

Steven E. Bauman
Attorney for Applicants
Registration No. 33,832

HENKEL CORPORATION
Legal Department
1001 Trout Brook Crossing
Rocky Hill, Connecticut 06067